Green Chemistry Phase 1 White Paper

Background

The Green Chemistry work group supported the preparation of a white paper to learn more about the production of titanium dioxide (TiO_2) and its potential to produce inadvertent PCBs (iPCBs). Northwest Green Chemistry was contracted to prepare the white paper that would provide recommendations for additional investigations associated with TiO_2 and could be used to inform external stakeholders.

Purpose of Phase 1 White Paper

The purpose of this paper is to identify the potential and magnitude for the manufacture of TiO_2 to produce inadvertent PCBs (iPCBs) that could end up in consumer and industrial products and potentially be a source of PCBs to the Spokane River. Based on the literature reviewed and limited testing cited by a pigment and coatings supplier, it is estimated that, globally, 576 pounds of PCBs are inadvertently generated during production of TiO_2 via the chloride process on an annual basis. Additional testing would be needed to confirm the magnitude of iPCB generation, what congeners are associated with iPCBs, the prevalence of iPCBs in consumer and industrial products using TiO_2, and potential pathways to the Spokane River. The white paper includes the following recommendations:

- Test both pigmentary and ultrafine (nano) TiO_2 manufactured by different suppliers for PCBs to confirm if, and how much, iPCBs are generated during the chloride process;
- Test pure pigment first, rather than formulated products containing TiO_2.

Green Chemistry work group recommendations to Task Force

Approve the TiO_2 white paper and support the recommendation to

1) Test pigmentary and ultrafine TiO_2 to characterize the amount and types of iPCBs associated with TiO2
2) Consider future evaluation of consumer and industrial products containing TiO_2.